

**DISCRETE ABSOLUTE SENSOR AND CODE****ABSTRACT**

A transmission position encoder for a vehicle having a transmission, a transmission controller and a transmission shifter adapted to shift the transmission and reposition the transmission position encoder, the  
5 transmission position encoder comprising: a plurality of detectors for providing a plurality of signals to the controller, said plurality of signals corresponding to discrete positions of the transmission position encoder wherein the controller is adapted to determine if there is a failure in any one of the detectors as the transmission position encoder transitions from a single position to one other  
10 position.